

REMARKS

I. INTRODUCTION

Claims 8 and 36 have been amended. Fig. 1 has been amended. The Abstract has been amended. No new matter has been added. Claims 1-37 remain pending in the present application. Applicants would like to thank the Examiner for indicating the allowability of claims 9-11 and 25-30. However, in view of the above amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable.

II. THE OBJECTION TO THE DRAWINGS SHOULD BE WITHDRAWN

Figure 1 stands objected to for not including labels in the boxes. *10/04/07 Office Action*, p. 2. The attached sheet of drawings replace the originally filed sheet of drawings including Fig. 1. The attached sheet of drawings includes labels for the boxes. Thus, it is respectfully submitted that the Examiner should withdraw the objection to the drawings.

III. THE OBJECTION TO THE SPECIFICATION SHOULD BE WITHDRAWN

The abstract stands objected to for including more than 150 words. *10/04/07 Office Action*, p. 3. The abstract has been amended and is within the allowable range of words. Specifically, the abstract includes 135 words. Thus, it is respectfully submitted that the Examiner should withdraw the objection to the specification.

IV. THE 35 U.S.C. § 112 REJECTION SHOULD BE WITHDRAWN

Claim 8 stands rejected under 35 U.S.C. 112, second paragraph, for being indefinite. *10/04/07 Office Action*, p. 3. Specifically, the Examiner states that claim 8 includes the term "ramp profiles" which is not clear. Claim 8 has been amended to recite "linear slopes." The figures and the specification of the present application provide illustrations of a ramp profile. *Specification*, p. 20, ¶ [0077]; Fig. 2). As illustrated in Fig. 2, a ramp profile may be

described as a linear slope. Thus, it is respectfully submitted that amended claim 8 is allowable as the term "linear slopes" is not indefinite.

Although the Examiner does not specifically include claim 36 in the rejection under 35 U.S.C. 112, second paragraph, for being indefinite, claim 36 also includes the term "ramp profiles." Claim 36 has also been amended to include the term "linear slope profiles."

V. THE 35 U.S.C. § 102(b) REJECTION SHOULD BE WITHDRAWN

Claims 1-2 and 12-13 stand rejected under 35 U.S.C. § 102(b) as being unpatentable over U.S. Pat. No. 6,694,977 to Federowicz et al. (hereinafter "Federowicz").
10/04/07 Office Action, p. 4.

Claim 1 recites a "method of applying *total* liquid ventilation to a patient according to a ventilation cycle including inspiration and expiration profiles." In contrast, Federowicz discloses a Mixed-Mode Liquid Ventilation (MMLV) system. The MMLV system provides liquid and gas together to the lungs of patients. The MMLV system of Federowicz further delivers the gas independently from the liquid. *Federowicz*, abstract. Furthermore, the liquid ventilation is performed independently of the gas ventilation. *Federowicz*, col. 11, ll. 11-12. That is, the gas ventilator has a ventilatory rhythm which is independent from the liquid ventilator.

In addition, Federowicz discloses a liquid ventilation used to change the temperature of the patient by inserting or removing a certain volume of liquid in the lungs. This procedure is not in synchronism with the actual respiratory cycle of the patient. As a result, the volume of supplied or removed liquid does not follow the patient's respiratory cycle but depends on the task to be performed. Federowicz specifically states that "PFC infusion/suction cycle ratios may be adjusted however to increase CO₂ removal in situations where this is especially needed." *Federowicz*, col. 13, ll. 25-32. The cycle of PFC (or liquid) supply and withdrawal may be changed according to some special needs or tasks to be accomplished, such as adding

heat or increasing CO₂ removal. In its entirety, Federowicz is silent on a ventilation cycle, in particular, when including inspiration and expiration profiles.

Furthermore, claim 1 recites "controlling independently supply of oxygenated liquid to the patient's lungs and withdrawal of liquid from the patient's lungs, the supply and withdrawal independent control comprising producing a ventilation cycle having independently controlled inspiration and expiration profiles." In contrast, Federowicz discloses a different concept of independence between delivery of gas and liquid ventilation that results in independence between operation of the gas ventilator and liquid ventilator.

Thus, it is respectfully submitted Federowicz neither discloses nor suggests a "method of applying total liquid ventilation to a patient according to a ventilation cycle including inspiration and expiration profiles" where the method comprises "supplying oxygenated liquid to the lungs of the patient during inspiration," "withdrawing liquid from the patient's lungs during expiration," and "controlling independently supply of oxygenated liquid to the patient's lungs and withdrawal of liquid from the patient's lungs, the supply and withdrawal independent control comprising producing a ventilation cycle having independently controlled inspiration and expiration profiles," as recited in claim 1. Accordingly, it is respectfully submitted that claim 1 is allowable and the Examiner should withdraw the 35 U.S.C. § 102(b) rejection of claim 1 and all claims depending therefrom (claims 2, 12-13).

Claims 14 and 31 stand rejected under 35 U.S.C. § 102(b) as being unpatentable over U.S. Pat. No. 5,706,830 to Parker. 10/04/07 *Office Action*, p. 5.

The Examiner asserts that Parker discloses a system for applying liquid ventilation which comprises an inspiration pump and expiration pump independently controlled "in order to produce a ventilation cycle having independently controlled inspiration and expiration profiles," as recited in claim 14. *Id.* However, Parker specifically states that "the inflow (inspiration) pump works in *combination* with the outflow (expiration) pump under control of the computer." That is, the inspiration and expiration pumps of Parker are dependent upon each other during the liquid ventilation so as to create inspiratory and expiratory profiles.

Thus, it is respectfully submitted that Parker neither discloses nor suggests a system comprising "a ventilation cycle control means comprising first and second pump controllers connected to the inspiration and expiration pumps, respectively, to control independently said inspiration and expiration pumps in order to produce a ventilation cycle having independently controlled inspiration and expiration profiles," as recited in claim 14. Accordingly, it is respectfully submitted that claim 14 is allowable and the Examiner should withdraw 35 U.S.C. § 102(b) rejection of claim 14 and depending claim 31.

VI. THE 35 U.S.C. § 103(a) REJECTION SHOULD BE WITHDRAWN

Claims 3-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Federowicz in view of Parker. *10/04/07 Office Action*, p. 6. Federowicz and Parker were discussed above.

As discussed above, neither Federowicz nor Parker discloses or suggests "controlling independently supply of oxygenated liquid to the patient's lungs and withdrawal of liquid from the patient's lungs, the supply and withdrawal independent control comprising producing a ventilation cycle having independently controlled inspiration and expiration profiles," as recited in claim 1. Accordingly, neither Federowicz nor Parker, either alone or in combination, discloses or suggests the above recitation of claim 1. Because claims 3-8 depend from and, therefore, include all the limitations of claim 1, it is respectfully submitted that these claims are also allowable.

Claims 15-16 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Parker in view of Federowicz. *10/04/07 Office Action*, p. 7. Federowicz and Parker were discussed above.

As discussed above, neither Federowicz nor Parker discloses or suggests "a ventilation cycle control means comprising first and second pump controllers connected to the inspiration and expiration pumps, respectively, to control independently said inspiration and expiration pumps in order to produce a ventilation cycle having independently controlled

inspiration and expiration profiles,” as recited in claim 14. Accordingly, neither Federowicz nor Parker, either alone or in combination, disclose or suggest the above recitation of claim 14. Because claims 15-16 and 22 depend from and, therefore, include all the limitations of claim 14, it is respectfully submitted that these claims are also allowable.

Claims 17-18, 20-21, and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Parker in view of Federowicz in further view of U.S. Pat. No. 5,770,149 to Raible. 10/04/07 Office Action, p. 8. Federowicz and Parker were discussed above.

As discussed above, neither Federowicz nor Parker discloses or suggests “a ventilation cycle control means comprising first and second pump controllers connected to the inspiration and expiration pumps, respectively, to control independently said inspiration and expiration pumps in order to produce a ventilation cycle having independently controlled inspiration and expiration profiles,” as recited in claim 14. Raible also does not disclose or suggest this recitation of claim 1. Accordingly, neither Federowicz, Parker, nor Raible, either alone or in combination, disclose or suggest the above recitation of claim 14. Because claims 17-18, 20-21, and 23 depend from and, therefore, include all the limitations of claim 14, it is respectfully submitted that these claims are also allowable.

Claims 19 and 32-37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Parker in view of Federowicz in further view of U.S. Pat. Pub. No. 2002/0153010 to Rozenberg et al. (hereinafter “Rozenberg”). 10/04/07 Office Action, p. 9. Federowicz and Parker were discussed above.

As discussed above, neither Federowicz nor Parker discloses or suggests “a ventilation cycle control means comprising first and second pump controllers connected to the inspiration and expiration pumps, respectively, to control independently said inspiration and expiration pumps in order to produce a ventilation cycle having independently controlled inspiration and expiration profiles,” as recited in claim 14. Federowicz also does not disclose or suggest this recitation of claim 1. Accordingly, neither Federowicz, Parker, nor Rozenberg, either alone or in combination, disclose or suggest the above recitation of claim 14. Because

claims 19 and 32-37 depend from and, therefore, include all the limitations of claim 14, it is respectfully submitted that these claims are also allowable.

Claim 24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Parker in view of Federowicz in further view of U.S. Pat. No. 6,983,749 to Kumar et al. (hereinafter "Kumar"). 10/04/07 *Office Action*, p. 11. Federowicz and Parker were discussed above.

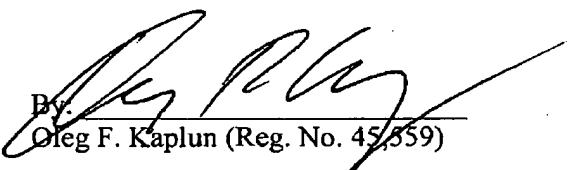
As discussed above, neither Federowicz nor Parker discloses or suggests "a ventilation cycle control means comprising first and second pump controllers connected to the inspiration and expiration pumps, respectively, to control independently said inspiration and expiration pumps in order to produce a ventilation cycle having independently controlled inspiration and expiration profiles," as recited in claim 14. Kumar also does not disclose or suggest this recitation of claim 1. Accordingly, neither Federowicz, Parker, nor Kumar, either alone or in combination, disclose or suggest the above recitation of claim 14. Because claim 24 depends from and, therefore, includes all the limitations of claim 14, it is respectfully submitted that this claim is also allowable.

CONCLUSION

In light of the foregoing, Applicants respectfully submit that all of the pending claims are in condition for allowance. All issues raised by the Examiner having been addressed, and an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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